



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

tone which pervades the settlers of these provinces, and promised to make New Zealand the England of the southern hemisphere, will be changed to the feverish, discontented one which characterizes the population of a gold country.

It may be interesting to you to know that I discovered at the Antipodes the remains of what I deem to be a species of fossil lizard closely resembling the *Plesiosaurus* of the *Lias*. I have sent the fossils to Professor Owen. There is said to be a possibility that the British Museum may still be adorned by a *Dinornis*: the footsteps of a gigantic bird, it is stated, were seen by a surveyor's party; they were 14 inches long, and 11 inches wide on the spread, and they had been impressed during the night over the tracks of the men made on the previous day. All the wingless birds existing in New Zealand are nocturnal in their habits, and the general impression from Maori tradition is, that the *Moa* was a gigantic *Apteryx*. The district is exceedingly rocky, and full of caves, in some of which it is just possible that a surviving individual may find its hiding places. Exertions are being made (the last steamer's mail brings us intelligence) to ascertain the truth of the report, and if correct, thoroughly to search the wild and unsettled districts where it is said to be. Certainly this will be a most interesting event to naturalists should the search prove successful. I must say I feel somewhat sanguine on the subject, as once, when in that part of the Middle Island, I heard of a very circumstantial account given by a man, who stated that he had seen a great bird go down into a rocky glen one morning at daybreak, but the story was not credited. The surveyor who now makes the statement is understood to be a man of character.

2. *Report on the Natural Products and Capabilities of the Shiré and Lower Zambesi Valleys.* By JOHN KIRK, Botanist to the Livingstone Expedition. Dated Senna, Dec. 28th, 1860.

I BEG to offer the following Report concerning the capabilities of the regions explored by the expedition under your command for the growth of such articles as are in demand in Europe:—

The countries examined have been those bordering the Zambesi from the east coast to Seshke, a Makololo town, situated in the centre of the African continent; likewise the valley of a tributary river, the Shiré, from Lake Nyassa to its confluence with the Zambesi near Moramballa Hill. The highlands of the Batoka and Manganja countries have also been visited. The area thus included extends over 11° of longitude and 5° of latitude; the greatest height above the sea level being 8000 feet.

The Zambesi forms a large Delta, commencing 60 miles from its mouth; the coast for about 8 miles inland is muddy, wooded with mangrove, *avicennia*, and other trees peculiar to such places within the tropics; the remainder of the Delta consists of rich flat alluvial lands, intersected by many branches of the river. This great tract is covered almost exclusively with gigantic grasses, which keep down all other forms of vegetation, only *borassus* palms, with a few figs, acacias, or *lignum vitae* trees, being able to resist the fires which sweep over these plains during the dry season. The people at present inhabiting the Delta are for the most part fugitives; the slave trade and war have combined to desolate this rich country, which once produced corn, vegetables, and fruits in abundance. Near the coast cotton of an inch staple is found growing wild, having sprung up from seed accidentally scattered; this equals in value much of the Egyptian. Climate and soil are admirably suited, seeing that the plant succeeds so well without cultivation, surrounded by weeds. In the more inland districts it could not raise its head above the

dense luxuriance of the other vegetation. The labour required to cultivate cotton here is very small, and the Delta might be made a vast cotton field by encouraging the natives to industry. Many parts of these lands are also suited for the growth of the sugar cane; a little is now raised near the coast, and succeeds well; and it might be raised in most parts even without irrigation. Besides sorghum, *pennisetum*, maize, *setaria*, *eleusine*, and various other sorts of native corn, the Delta also yields wheat during the cold season. Rice of good quality is also cultivated. Tropical fruits succeed well, and near the coast mangos, pine-apples, guavas, cashews, lemons, oranges, and cocoa-nuts are still found where Portuguese settlements had existed in former times.

The climate of the Delta is mild, presenting neither the excessive heat nor cold of the interior; the atmosphere is much moister, and heavy dews are frequent; the prevalence of a sea breeze renders the parts near the coast more healthy than those within the mangroves. The malaria, although an obstacle to the settlement of Europeans, is by no means so intense as that of the west coast; and we have not found a case which resisted treatment, while a cure is commonly effected on the third day. To those passing through or remaining for a short time, there seems to be no danger. But in order that this might become an extensive source of cotton, the permanent residence of Europeans is not necessary; if it were raised by the natives and purchased from them by agents, a steady supply might be depended on; but time would be needed, even under a wise government, to bring the Delta back to a flourishing state.

The valley of the Zambesi, from the Delta to where the river enters the Batoka Hills, presents a very uniform vegetation; that of the valleys and adjacent plains differing from that of the hills, which frequently cross the river. In its course it is joined by the Loangwa and Kafué from the north, and several smaller streams from the south. The forests which clothe this region abound in valuable woods. *Lignum vitae* and ebony are both common, so much so that in the region between Tetté and Shupanga we have frequently consumed a ton per day of these alone—the only difficulty experienced being to obtain them of sufficiently small size to enter the badly constructed furnace. There are also many timber trees suitable for machinery and ship-building. A species of *Pterocarpus* (the "Malompe"), from its lightness and strength, is well adapted for making oars, and is used by the people of the interior for their paddles. The forests, inland from Shupanga, contain the "gunda," from single trees of which, canoes capable of carrying 3 tons are hollowed out.

The hilly regions, especially those between Senna and Tetté, contain the buaze, but it is found in the hills of Mburuma and of the Batoka also. This is the best fibre in the country, being durable when exposed to wet; it is invariably used for fishing-nets, and exists so abundantly that no attempt has been made to cultivate it. The seed also yields a large amount of a drying oil. Between the river bank and the hills there are many wide plains of the richest soil, which in ordinary seasons yield abundant crops, but are liable to suffer from droughts by which the corn crops are cut off, but do not affect the cotton to such an amount. In the damp valleys sugar-cane and wheat are raised, but irrigation would be required to render these crops general. The district to the north of Tetté is the only part in which sugar is manufactured: this is performed in a very rude manner by the natives.

Cotton seems to be the crop best suited for these parts; it is grown in small quantities everywhere; it is a perennial shrub, and springs up the following season even after being burned down; the quality varies very much. That of Kebrabassa is good, also that found beyond the Kafué, but in the intermediate space that chiefly cultivated is of the Kaja or native sort. And the plantations are very small: this is to be accounted for by their distance from the coast, and the very unsettled state of the population, who have been impoverished by successive bands of the Matebele. Above Kebrabassa there are hundreds of miles of the best cotton lands, but until these rapids shall have been shown

to be navigable at flood, there exists a considerable land carriage which could not be undertaken unless these parts were in the hands of an active and powerful government.

The valley of the Zambesi, beyond the Victoria Falls, is so far removed from the navigable part leading to the east coast, that its vegetable produce is of comparatively little importance in a commercial point of view; it is also very unhealthy; otherwise it is a very rich country, inhabited by the finest races we have met, both for physical and mental development; they seem free of the suspicion with which a foreigner is regarded in other parts, and are anxious to obtain European articles, of which they see the advantage. In the north, beyond the part reached by us, the sugar-cane is said to be grown, while near Sesheke the cotton-plant attains a size not observed elsewhere; a single plant sometimes covering a space of 12 feet diameter, and forming a stem 8 inches thick. A plantation of such bushes would require only to be kept clean to continue for a lifetime. This had been a season of unusual drought, but there had been a heavy crop of cotton, which was allowed to rot on the ground.

The Batoka highlands, to which attention has been drawn as the first discovered in these latitudes possessing a healthy climate, are situated to the north of the Zambesi, between it and the Kafué. The valley of the Zambesi is there 1000 feet above the sea; the southern slopes are steep, and come down near to the river; the highlands themselves form a vast undulating plain, varying from 3000 to 4000 feet high; they are covered with grass suitable for cattle, and open forests abounding in game; in most parts they are well watered by streams which might be made to irrigate the surrounding parts. The climate is cool and healthy, and during the cold season there are frosts at night. Near the Victoria Falls various native fruit trees have been cultivated by the natives; a thing almost unknown in other parts of Southern Africa. Cotton is said to be grown in the north, and the parts visited by us, which had been deserted by the inhabitants, seemed in every respect well suited for it. If these regions were more accessible, their value could not be over-estimated, as a European settlement would exercise a most beneficial influence over the interior, and prevent those desolating wars which have stayed the advancement of the people. The whole of this country is free of the Tsetse fly, which is so common in the Zambesi valley; thus cattle and horses might be kept, and an industrious population would soon congregate around any one who could secure to them peace. The obstacles which stand in the way are the difficulties of communication with the coast.

Turning to the valley of the river Shiré, which joins the Zambesi, 80 miles from the coast, near the Hill of Moramballa, we meet a fertile region in immediate communication with the coast, forming the pathway to another still richer, possessing highlands superior in point of position to those of the Batoka, thickly peopled by an industrious race, already extensively engaged in the growth of cotton. The people are of one race and language, but governed by many chiefs, each supreme in his own district. These regions possess the advantages of easy access, and of not having had intercourse with the Portuguese settlements. Previous to our visit Europeans had never been seen by the people, and we were invariably well treated, unless when coming in contact with slave-trading parties from the coast. The first hundred miles of this valley takes a northerly course, the river being deep and navigable the whole way; beyond this, a mountainous region, involving a transport of 35 miles, intervenes between the lower and upper valley, in which the Shiré is again navigable to Lake Nyassa, in latitude S. 14° 30'.

The trade of the interior, on its way to the different coast towns, passes to the south of the lake, crossing the river Shiré. The chiefs in these parts, possessed of neither ivory nor copper, must sell their people if they would purchase foreign goods, and excuses are easily found for such a course. By

the present path of trade they are so far removed from the coast that cotton could not repay the carriage, but, by the establishment of commerce on the Shiré, the production of cotton and sugar would open to them a more profitable means of employing labour, and direct the people to industry and the growth of such things as are required in Europe, being advantageous to both parties.

The Lower Shiré valley is 100 miles in length and 20 miles average width, with hills on either side; it is raised only a few feet above the river level, which is much more constant throughout the year than that of the Zambesi. The soil is of the richest description, producing a luxuriant vegetation much like that of the Delta, but possessing more trees, including lignum vitae and ebony. Near the river the motsakiri tree, whose seed yields oil, is abundant, and there are large spaces occupied by the borassus palm. In the southern part rice is grown extensively, and the crops do not suffer from want of rain. In the northern, bananas, sugar-cane, cassava, and sweet potatoes are cultivated; while every village has large plantations of cotton; the quality being superior to that seen elsewhere. The natives grow it for the manufacture of cloths, a most tedious process when performed without machinery; the picking and spinning are done by hand, and all engage in it from the chief to the poor people. They have never had an opportunity of selling cotton, but seemed delighted with the idea, and would readily enter into its growth on a large scale if they knew that it would be purchased in exchange for cloth and beads. The whole valley is admirably suited for the growth of cotton, while some parts possessing a large amount of salt, which appears on the surface during the dry months, may yield the Sea Island variety, so much esteemed from the great length of its fibre. The only experiment made with this variety of cotton was at Tetté, where it grew from seed brought by the expedition, and continues still, although in a very unfavourable situation. This yielded $1\frac{1}{2}$ inch staple. The other varieties of seed brought were inferior to what is now in the country.

The Upper Shiré valley is continuous with the southern end of Lake Nyassa, and about 1000 feet above the sea level. The range of hills separating it from Lake Shirwa is distant from 5 to 10 miles. The extent of plain on the west seemed to be much greater. Although not free from fever, this is a much more healthy situation than the Lower Shiré valley; the soil is equally rich, and suitable for sugar-cane and cotton; the latter is a universal accompaniment of every village, some fields being an acre in extent. From its proximity to the highlands this is a promising tract, as it possesses the river leading south to the Zambesi and north to Lake Nyassa.

The highlands of the Manganja country are placed between the river Shiré and Lake Shirwa; they are part of that elevated ridge which extends far along the eastern side of the African continent; their altitude varies from 3000 to 4000 feet, but there are single mountains in the range much exceeding that, the highest being "Zomba," which reaches 8000 feet. The western slopes to the Shiré are steeper than those on the east, which go down to Lake Shirwa, nearly 2000 feet above the sea level. These undulating highlands are watered by many streams which continue flowing the whole year. The climate is cool and pleasant, and in our experience quite free of malaria; those who had suffered when in the valley, feeling a sudden change on ascending the hills.

The cotton of these elevated regions is an annual, from 3 to 4 feet high; it is gathered in August and September, at which season there is no danger of the crop being injured through rain. Sugar-cane is grown in many parts, and would succeed well almost any where, from the abundance of moisture in the soil, and the facilities offered for irrigation by the many perennial streams. European vegetables and fruits, also wheat, could be raised during the cold season. Magnetic iron ore is abundant near the schist rocks which compose

the mountain chain, with the exception of the higher peaks; from it the natives manufacture implements of agriculture and war.

Of all the regions explored, the Manganja highlands are the best suited for a settlement conducted by Europeans: possessing a good soil and climate, they command both Upper and Lower Shiré valleys, and lead through Lake Nyassa to the countries far north and west, which now supply most of the ivory, copper, and slaves taken to the coast between Quillimane and Royuma. It is of easy access from the south, through the Zambesi and Shiré, and possibly another path may be found to it from the north. A vessel of 4 feet might pass at once up the river Shiré at all seasons, as the Zambesi below the confluence is free of the many sand banks which encumber it further up, and render its navigation difficult during the latter months of the dry season.

The flora of the highlands differs entirely from that of the valleys, but bears a resemblance to that of the Batoka country. The grass is in general short compared with that of the plains; there is an abundance of fine trees, and several sorts of fruits. Many orders of plants, scarcely known below, are here abundant, such as Ranunculaceæ, Proteaceæ, Balsamineæ, Melastomaceæ, Geraniaceæ, Rosaceæ, Piperaceæ, Iridaceæ, &c., while the many ferns show a humid climate compared with the Zambesi valley, where that order of plants is almost absent.

The tsetse fly is unknown among the hills, and very rare in the Upper Shiré valley on the eastern side. In the lower valley, however, it is the natural accompaniment of the large herds of elephants which inhabit the grass plains and marshes.

The expedition has thus shown unlimited tracts of land adapted for cotton, and others suited for sugar-cane; the best for both being near the coast, and enjoying a healthy climate, thickly peopled by a race already engaged in the growth of cotton, all that is required being to develop further a branch of industry now existing, in doing which the slave-trade would be broken and the victims of it turned to industry at home. The only obstruction now standing in the way is the restriction to the free navigation of the Zambesi, which, while closed to others, is not in use by the Portuguese, who have only employed it occasionally for the shipment of slaves, but never for trade. A large supply of lignum vitæ, ebony, buaze fibre, and Indian rubber has also been pointed out, while the abundance of wild indigo seems to indicate a country adapted for its production.

Special Notice of a few of the more important Vegetable Productions.

COTTON.—There are two species of the cotton plant cultivated in the countries explored: one of these, known as *Tonje Kaja*, has been in existence for a very long time, and may be indigenous; no trace of its introduction can be found; it is found everywhere, but is being replaced by a better sort named *Tonje Manga*, which signifies foreign cotton, and is of modern introduction, having come from the various towns on the east coast. A variety of the Tonje Manga is met with in the interior of the continent, but not found much further east on the Zambesi than the confluence of the Kafué. This may have been introduced from the west coast.

The Tonje Kaja is, according to situation, either perennial or annual; on the Manganja Hills it is an annual from 2 to 4 feet high, sown in March and gathered in August. In the valleys it forms a shrub, remaining several years in the soil. It is readily known from the other sort by leaf and seed. The cotton is of very short staple, seldom exceeding half an inch; it very much resembles wool, and adheres strongly to the seed, from which it cannot be entirely removed: this renders it much more troublesome to pick, and an iron roller is employed to facilitate the separation.

The plant is much less prolific than the other, and the only good quality

possessed by it is superior strength, on which account some still prefer it. It is the most universally distributed, being seen everywhere from the coast to the valley above the Victoria Falls and along the course of the Shiré. In the region shut off from the coast by Lake Shirwa, it becomes the only sort grown; but the foreign kind is advancing from both north and south, and fast displacing it.

Tonje Manga, the sort of recent introduction, is, like the other, annual or perennial; it is superior in every respect, and attains a much greater size. The staple varies from half an inch to an inch and a quarter, has great lustre, and separates from the seed, which has a clean black coat. What is now produced on the Zambesi and Shiré equals much of the Egyptian, and might be improved by the judicious selection of seed. But there is no necessity for the introduction of new seed, what is now grown on the Shiré being of good quality and very prolific. The variety of Tonje Manga found in the central African valley above the Victoria Falls and as far down as the confluence of the Kafué, differs in the cohesion of the seeds of each cell which form a mass, from the exterior of which the cotton separates easily. The plant attains a great size, and continues seemingly for an indefinite time. Among the ruins of the old town of Sesheke a single plant was measured with a woody stem 8 inches diameter, and covering a space of 12 feet. This year it had yielded an abundant crop of cotton $\frac{1}{2}$ of an inch in fibre.

Having found cotton throughout the whole extent of country explored, we know what quality may certainly be obtained, while much more may be expected from careful cultivation. The only cotton seed brought by us, superior to that already in the country, was the Sea Island variety: this yielded excellent cotton $1\frac{1}{2}$ inch long when grown under the most disadvantageous circumstances, and the plant still continues at Tetté, although uncared for. Nowhere have we seen cotton which would not be worth exportation, but the best is that of the Manganja country, where the people have given it much attention; thence it might also be exported with least expense, while Europeans, settled in the neighbouring highlands, could direct and superintend the natives of the valleys.

The Delta is excellent cotton ground, but unfit for Europeans, and the present population is very thin and unsettled. Beyond Kebrabassa the Zambesi valley both below and above the Victoria Falls, with the Batoka highlands, might produce a vast supply, and the Batoka hills present a healthy station for residents; but the difficulties at present connected with the rapids of Kebrabassa render this an inferior position in which to commence such an undertaking, which is to be regretted, as the people of the interior seem more disposed to industry than those of the coast.

The specimens of cotton contained in the collection sent to the Royal Gardens at Kew exhibit fully the different qualities found on the Lower Zambesi and on the Shiré. Since then, others have been added from the interior, showing that the cotton grown there is but little inferior.

SUGAR-CANE.—The want of moisture and occurrence of droughts in certain seasons limit the amount of soil adapted for the growth of the sugar-cane. Nevertheless, the greater part of the Delta, the Shiré Valley, the Manganja Hills, with spots near the Zambesi, where joined by tributary streams, are capable of producing it abundantly. In each of these parts we have found it in cultivation, but in small amount. Near the Portuguese settlement of Tetté alone is sugar manufactured, but the process is so rude that it always possesses a bad flavour. The Manganja Hills and tablelands are certainly the regions best suited for its growth, being conducted by Europeans. There the many perennial springs, sources of streams, irrigating the whole country, prevent the failure of crops, and would supply sources of water-power. The only drawback to the Lower Shiré Valley and the Delta is the prevalence of fever; in other respects it is perhaps the best situation for the cane.

The Portuguese have paid as little attention to sugar as they have to cotton : that made at Tetté is not much used by the Europeans.

OILS.—The groundnut succeeds well, and is universally cultivated by the natives ; from it oil is expressed, which they use with food, but it has not been made an article of commerce ; and the machinery used even at Tetté is of the rudest description.

The Sesamum is also grown from the coast to the Batoka country. Different species of Cucurbitaceous plants yield a pure oil from their seeds, which is employed in cookery.

The Motsakiri tree, of the order Meliaceæ, grows abundantly near the river banks both of the Zambesi and Shiré in all parts ; from its wide distribution this might be obtained in considerable quantity ; it separates under exposure to cold into a solid and fluid portion.

Other oils are obtained from the seeds of the Sterculia, and the "Boma" nut (grown extensively at the Victoria Falls) yields a large amount of a pure oil. This is the produce of a large tree which had neither leaf nor flower at the time of our visit to the interior.

INDIAN RUBBER.—Caoutchouc is obtained near Shupanga, from a climbing shrub of the order Apocynaceæ, sub order Carisseæ, the fruit of which is eatable. The stem, sometimes six inches diameter, is covered with a rough bark ; the plant exists abundantly in the forests of Shiringoma, and produces, with little trouble, a large amount of the substance ; a little is collected by the natives for domestic uses, but it has not been made an article of export. The process employed is very simple : the outer rough bark being removed, a few punctures are made in the inner, and the milky juice, as it issues, is applied to the skin ; by successive applications a ball is soon formed, to the surface of which new layers are added. The many uses to which this substance is now applied, render every additional source of importance.

COFFEE.—This was introduced at an early period, but has become nearly extinct ; at Senna and Tetté there still exist a few plants.

The country near the Portuguese settlements is too dry for coffee to succeed well, but in the Manganja country it would thrive, and probably become naturalized if once introduced into the forests on the hill slopes.

WOODS AND TIMBER.—The *Lignum Vitæ* of this country, produced by a tree of the order Combretaceæ, exactly resembles in all its physical properties that now in use ; the woody layers presenting the same decussation of the fibres. It may be obtained in an unlimited amount from the regions between Shupanga and Tetté ; it exists abundantly on the Shiré, and on the Zambesi as far as the Batoka Hills. The trunk is most commonly 18 inches diameter, but met with as much as 4 feet, forming one of the largest of the forest trees. The trees attaining great dimensions are, however, frequently unsound.

Ebony is the produce of a small tree of the Leguminosæ, abundant throughout the Zambesi and Shiré Valleys. The trees, when they exceed 6 inches diameter in the black heart wood, are frequently rotten in the heart. Ebony of moderate dimensions may be had in abundance ; the places where it is most common are near Senna, Shupanga, and Zumbo.

The "Mopane," which forms extensive forests, to the exclusion of other trees, yields a wood named here "Iron wood :" it may be had in long pieces of 8 inches diameter ; it is extremely hard and durable, but difficult to work : being proof against the white ant, it is useful for house-building.

The "Malompe," a *Pterocarpus* yielding a gum similar to kino, produces the wood used up country for the long paddles of the canoes : from its elasticity and lightness it is well adapted for machinery, and for oars seems to be superior to anything now in use. It is most abundant on the hills, but exists at Shupanga. In making paddles the natives split it up with wedges to secure an even grain.

DYE STUFFS.—*Indigo* is a native of the country, found wild near the

Zambesi from the Delta to the Batoka country. The plant is often very luxuriant, reaching 6 feet high in the Shiré valley near Lake Nyassa; at Tetté, on the stony ground near the town, it does not exceed 1 to 2 feet. Judging from small experiments made at Shupanga, where it is particularly abundant, the indigo produced from this species seems to be of good quality.

It is singular that the art of dyeing by means of it should be quite unknown among the natives, nor is it practised among the Portuguese.

Orchilla weed may be gathered from the bark of trees in the Delta near the coast, being frequent near the Luabo mouth.

Fustic.—A climbing shrub, a species of *Maclurea* with eatable fruit, exists in the Zambesi valley both above and below Kebrabassa. It seldom, however, attains a sufficient size to form much of the heart wood which contains the colouring matter. If this should be found in sufficient quantity, it would be of value, as the colour is permanent and good.

CEREALS.—There are many cereals now in use among the people: of these, *Sorghum*, *Pennisetum*, *Eleusine*, *Setaria*, maize, rice, and wheat are the principal; of these the last three are of most importance to Europeans. The Delta and Lower Shiré valley are the best rice grounds, while wheat requires a constant supply of moisture during the cold season. Thus, without irrigation (which has not been practised since the time of the Jesuits) it can only be grown in the damp hollows, which are under water part of the year; in such places it is raised in the Delta and near Tetté; but the Manganja highlands are the best suited for it, being cool and more abundantly watered than any other part.

3. *On the Batoka Country.* By Mr. CHARLES LIVINGSTONE. Dated
“Kongoni mouth of the Zambesi, Jan. 14, 1861.”

Read April 22, 1861.

THE country of the Batoka, in Central Africa, lies between the 25th and 29th degrees of east longitude and the 16th and 18th of south latitude. It has the river Kafué on the north, the Zambesi on the east and south, and extends west till it touches the low fever-plains of the river Majeela, near Sesheke.

A mountain range running N.E. and S.W. rises abruptly about 15 miles north of the Zambesi, and spreads north and west in a vast undulating table-land, 3000 to 5000 feet above the level of the sea, with extensive grassy plains, through which wind several perennial streams, as the Kalomo, Likone, Ungnesi, &c.

Between this elevated land and the Zambesi, as far west as Thabacheu, the Tetté sandstone is the prevailing rock, while limestone, beds of shale, and seams of coal crop out from the banks of some of the small streams which flow into the Zambesi. North and west of this, granite resembling the Aberdeen variety abounds, and especially so on the Kalomo; while near the Victoria Falls of Mosioatunya, basalt, of apparently recent origin, is the common rock. These broad, elevated lands have a fine healthy climate, well adapted to the European constitution. Fever is unknown. In winter the thermometer sinks during the night as low as 30° Fahr., when thin ice is formed, and during the day the temperature rises to about 68°.

But a few years since these extensive, healthy highlands were well peopled by the Batoka; numerous herds of cattle furnished abundance of milk, and the rich soil largely repaid the labour of the husbandman. Now enormous herds of buffaloes, elephants, antelopes, zebras, &c., fatten on the excellent pasture which formerly supported multitudes of cattle, and not a human being is to be seen. We travelled from Monday morning till late in the Saturday afternoon (from Thabacheu to within 20 miles of Mosioatunya) without